SEQUENCE LISTING

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STAHL, Ulf
EK, Bo
SJODAHL, Staffan

<120> PLANT ENZYME AND USE THEREOF

<130> STYMNE=1

<140> 09/155,124
<141> 1999-03-02

<150> PCT/SE97/00554
<151> 1997-03-27

<150> 9601237.2
<151> 1996-03-29

<160> 14

<170> PatentIn Ver. 2.0

<210> 1
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<212> PRT
<213> Canis sp.

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Gly Gly Ile Ser Pro Arg Ala Val Trp Gln Phe Arg Asn Met Ile Lys
             20                  25                  30

Cys Thr Ile Pro Glu Ser Asp Pro Leu Lys Asp Tyr Asn Asp Tyr Gly
         35                  40                  45

Cys Tyr Cys Gly Leu Gly Gly Ser Gly Thr Pro Val Asp Glu Leu Asp
     50                  55                  60

Lys Cys Cys Gln Thr His Asp His Cys Tyr Ser Glu Ala Lys Lys Leu
 65                  70                  75                  80

Asp Ser Cys Lys Phe Leu Leu Asp Asn Pro Tyr Thr Lys Ile Tyr Ser
                 85                  90                  95

Tyr Ser Cys Ser Gly Ser Glu Ile Thr Cys Ser Ser Lys Asn Lys Asp
            100                 105                 110

Cys Gln Ala Phe Ile Cys Asn Cys Asp Arg Ser Ala Ala Ile Cys Phe
        115                 120                 125

Ser Lys Ala Pro Tyr Asn Lys Glu His Lys Asn Leu Asp Thr Lys Lys
    130                 135                 140

Tyr Cys
145
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SEQUENCE LISTING

<110> STYMNE, Sten
STAHL, Ulf
EK, Bo
SJODAHL, Staffan

<120> PLANT ENZYME AND USE THEREOF

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<151> 1996-03-29

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<400> 1

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Met | Lys | Phe | Leu | Val | Leu | Ala | Ala | Leu | Leu | Thr | Val | Ala | Ala | Ala | Glu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Gly | Gly | Ile | Ser | Pro | Arg | Ala | Val | Trp | Gln | Phe | Arg | Asn | Met | Ile | Lys |
| | | 20 | | | | | | 25 | | | | | 30 | | |
| Cys | Thr | Ile | Pro | Glu | Ser | Asp | Pro | Leu | Lys | Asp | Tyr | Asn | Asp | Tyr | Gly |
| | 35 | | | | | | 40 | | | | | 45 | | | |
| Cys | Tyr | Cys | Gly | Leu | Gly | Gly | Ser | Gly | Thr | Pro | Val | Asp | Glu | Leu | Asp |
| 50 | | | | | | 55 | | | | | 60 | | | | |
| Lys | Cys | Cys | Gln | Thr | His | Asp | His | Cys | Tyr | Ser | Glu | Ala | Lys | Lys | Leu |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Asp | Ser | Cys | Lys | Phe | Leu | Leu | Asp | Asn | Pro | Tyr | Thr | Lys | Ile | Tyr | Ser |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Tyr | Ser | Cys | Ser | Gly | Ser | Glu | Ile | Thr | Cys | Ser | Ser | Lys | Asn | Lys | Asp |
| | | 100 | | | | | | 105 | | | | | 110 | | |
| Cys | Gln | Ala | Phe | Ile | Cys | Asn | Cys | Asp | Arg | Ser | Ala | Ala | Ile | Cys | Phe |
| | 115 | | | | | | 120 | | | | | 125 | | | |
| Ser | Lys | Ala | Pro | Tyr | Asn | Lys | Glu | His | Lys | Asn | Leu | Asp | Thr | Lys | Lys |
| 130 | | | | | | 135 | | | | | 140 | | | | |
| Tyr | Cys | | | | | | | | | | | | | | |
| 145 | | | | | | | | | | | | | | | |

<210> 2
<211> 138
<212> PRT
<213> Trimeresurus flavoviridis

<400> 2
Met Arg Thr Leu Trp Ile Met Ala Val Leu Leu Val Gly Val Asp Gly
1 5 10 15

Gly Leu Trp Gln Phe Glu Asn Met Ile Ile Lys Val Val Lys Lys Ser
20 25 30

Gly Ile Leu Ser Tyr Ser Ala Tyr Gly Cys Tyr Cys Gly Trp Gly Gly
35 40 45

Arg Gly Lys Pro Lys Asp Ala Thr Asp Arg Cys Cys Phe Val His Asp
50 55 60

Cys Cys Tyr Gly Lys Val Thr Gly Cys Asn Pro Lys Leu Gly Lys Tyr
65 70 75 80

Thr Tyr Ser Trp Asn Asn Gly Asp Ile Val Cys Glu Gly Asp Gly Pro
85 90 95

Cys Lys Glu Val Cys Glu Cys Asp Arg Ala Ala Ala Ile Cys Phe Arg
100 105 110

Asp Asn Leu Asp Thr Tyr Asp Arg Asn Lys Tyr Trp Arg Tyr Pro Ala
115 120 125

Ser Asn Cys Gln Glu Asp Ser Glu Pro Cys
130 135

<210> 3
<211> 148
<212> PRT
<213> Homo sapiens

<400> 3
Met Lys Leu Leu Val Leu Ala Val Leu Leu Thr Val Ala Ala Ala Asp
1 5 10 15

Ser Gly Ile Ser Pro Arg Ala Val Trp Gln Phe Arg Lys Met Ile Lys
20 25 30

Cys Val Ile Pro Gly Ser Asp Pro Phe Leu Glu Tyr Asn Asn Tyr Gly
35 40 45

Cys Tyr Cys Gly Leu Gly Gly Ser Gly Thr Pro Val Asp Glu Leu Asp
50 55 60

Lys Cys Cys Gln Thr His Asp Asn Cys Tyr Asp Gln Ala Lys Lys Leu
65 70 75 80

Asp Ser Cys Lys Phe Leu Leu Asp Asn Pro Tyr Thr His Thr Tyr Ser
85 90 95

Tyr Ser Cys Ser Gly Ser Ala Ile Thr Cys Ser Ser Lys Asn Lys Glu
100 105 110

Cys Glu Ala Phe Ile Cys Asn Cys Asp Arg Asn Ala Ala Ile Cys Phe
115 120 125

Ser Lys Ala Pro Tyr Asn Lys Ala His Lys Asn Leu Asp Thr Lys Lys
130 135 140

Tyr Cys Gln Ser
145

<210> 4
<211> 145
<212> PRT
<213> Notechis scutatus

<400> 4
Met Tyr Pro Ala His Leu Leu Val Leu Leu Thr Val Cys Val Ser Leu
1 5 10 15

Leu Glu Ala Ser Ser Ile Pro Ala Arg Pro Leu Asn Leu Tyr Gln Phe
20 25 30

Gly Asn Met Ile Gln Cys Ala Asn His Gly Arg Arg Pro Thr Leu Ala
35 40 45

Tyr Ala Asp Tyr Gly Cys Tyr Cys Gly Ala Gly Gly Ser Gly Thr Pro
50 55 60

Val Asp Glu Leu Asp Arg Cys Cys Lys Ala His Asp Asp Cys Tyr Gly
65 70 75 80

Glu Ala Gly Lys Lys Gly Cys Tyr Pro Thr Leu Thr Leu Tyr Ser Trp
85 90 95

Gln Cys Ile Glu Lys Thr Pro Thr Cys Asn Ser Lys Thr Gly Cys Glu
100 105 110

Arg Ser Val Cys Asp Cys Asp Ala Thr Ala Ala Lys Cys Phe Ala Lys
115 120 125

Ala Pro Tyr Asn Lys Lys Asn Tyr Asn Ile Asp Thr Glu Lys Arg Cys
130 135 140

Gln
145

<210> 5
<211> 145
<212> PRT
<213> Bungarus multicinctus

<400> 5
Met Asn Pro Ala His Leu Leu Ile Leu Ser Ala Val Cys Val Ser Leu
1 5 10 15

```
Leu Gly Ala Ala Asn Val Pro Pro Gln His Leu Asn Leu Tyr Gln Phe
            20                  25                  30

Lys Asn Met Ile Val Cys Ala Gly Thr Arg Pro Trp Ile Gly Tyr Val
        35                  40                  45

Asn Tyr Gly Cys Tyr Cys Gly Ala Gly Gly Ser Gly Thr Pro Val Asp
    50                  55                  60

Glu Leu Asp Arg Cys Cys Tyr Val His Asp Asn Cys Tyr Gly Glu Ala
65                  70                  75                  80

Glu Lys Ile Pro Gly Cys Asn Pro Lys Thr Lys Thr Tyr Ser Tyr Thr
                85                  90                  95

Cys Thr Lys Pro Asn Leu Thr Cys Thr Asp Ala Ala Gly Thr Cys Ala
            100                 105                 110

Arg Ile Val Cys Asp Cys Asp Arg Thr Ala Ala Ile Cys Phe Ala Ala
        115                 120                 125

Ala Pro Tyr Asn Ile Asn Asn Phe Met Ile Ser Ser Ser Thr His Cys
    130                 135                 140

Gln
145
```

<210> 6
<211> 138
<212> PRT
<213> Vipera ammodytes

<400> 6

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Met Arg Thr Leu Trp Ile Val Ala Val Cys Leu Ile Gly Val Glu Gly
  1               5                  10                  15

Ser Leu Leu Glu Phe Gly Met Met Ile Leu Gly Glu Thr Gly Lys Asn
            20                  25                  30

Pro Leu Thr Ser Tyr Ser Phe Tyr Gly Cys Tyr Cys Gly Val Gly Gly
        35                  40                  45

Lys Gly Thr Pro Lys Asp Ala Thr Asp Arg Cys Cys Phe Val His Asp
    50                  55                  60

Cys Cys Tyr Gly Asn Leu Pro Asp Cys Ser Pro Lys Thr Asp Arg Tyr
65                  70                  75                  80

Lys Tyr His Arg Glu Asn Gly Ala Ile Val Cys Gly Lys Gly Thr Ser
                85                  90                  95

Cys Glu Asn Arg Ile Cys Glu Cys Asp Arg Ala Ala Ala Ile Cys Phe
            100                 105                 110

Arg Lys Asn Leu Lys Thr Tyr Asn Tyr Ile Tyr Arg Asn Tyr Pro Asp
        115                 120                 125

Phe Leu Cys Lys Lys Glu Ser Glu Lys Cys
    130                 135
```

<210> 7
<211> 138
<212> PRT
<213> Bothrops jararacussu

<400> 7
Met Arg Thr Leu Trp Ile Met Ala Val Leu Leu Val Gly Val Glu Gly
1 5 10 15

Asp Leu Trp Gln Phe Gly Gln Met Ile Leu Lys Glu Thr Gly Lys Leu
20 25 30

Pro Phe Pro Tyr Tyr Thr Thr Tyr Gly Cys Tyr Cys Gly Trp Gly Gly
35 40 45

Gln Gly Gln Pro Lys Asp Ala Thr Asp Arg Cys Cys Phe Val His Asp
50 55 60

Cys Cys Tyr Gly Lys Leu Thr Asn Cys Lys Pro Lys Thr Asp Arg Tyr
65 70 75 80

Ser Tyr Ser Arg Glu Asn Gly Val Ile Ile Cys Gly Glu Gly Thr Pro
85 90 95

Cys Glu Lys Gln Ile Cys Glu Cys Asp Lys Ala Ala Ala Val Cys Phe
100 105 110

Arg Glu Asn Leu Arg Thr Tyr Lys Lys Arg Tyr Met Ala Tyr Pro Asp
115 120 125

Val Leu Cys Lys Lys Pro Ala Glu Lys Cys
130 135

<210> 8
<211> 145
<212> PRT
<213> Bos taurus

<400> 8
Met Arg Leu Leu Val Leu Ala Ala Leu Leu Thr Val Gly Ala Gly Gln
1 5 10 15

Ala Gly Leu Asn Ser Arg Ala Leu Trp Gln Phe Asn Gly Met Ile Lys
20 25 30

Cys Lys Ile Pro Ser Ser Glu Pro Leu Leu Asp Phe Asn Asn Tyr Gly
35 40 45

Cys Tyr Cys Gly Leu Gly Gly Ser Gly Thr Pro Val Asp Asp Leu Asp
50 55 60

Arg Cys Cys Gln Thr His Asp Asn Cys Tyr Lys Gln Ala Lys Lys Leu
65 70 75 80

Asp Ser Cys Lys Val Leu Val Asp Asn Pro Tyr Thr Asn Asn Tyr Ser
85 90 95

```
Tyr Ser Cys Ser Asn Asn Glu Ile Thr Cys Ser Ser Glu Asn Asn Ala
            100                 105                 110

Cys Glu Ala Phe Ile Cys Asn Cys Asp Arg Asn Ala Ala Ile Cys Phe
        115                 120                 125

Ser Lys Val Pro Tyr Asn Lys Glu His Lys Asn Leu Asp Lys Lys Lys
    130                 135                 140

Cys
145
```

<210> 9
<211> 145
<212> PRT
<213> Laticauda laticaudata

<400> 9

```
Met Tyr Pro Ala His Leu Leu Leu Leu Leu Ala Val Cys Val Ser Leu
  1               5                  10                  15

Leu Gly Ala Ser Ala Ile Pro Pro Leu Pro Leu Asn Leu Ala Gln Phe
            20                  25                  30

Ala Leu Val Ile Lys Cys Ala Asp Lys Gly Lys Arg Pro Arg Trp His
        35                  40                  45

Tyr Met Asp Tyr Gly Cys Tyr Cys Gly Pro Gly Gly Ser Gly Thr Pro
    50                  55                  60

Val Asp Glu Leu Asp Arg Cys Cys Lys Thr His Asp Gln Cys Tyr Ala
65                  70                  75                  80

Gln Ala Glu Lys Lys Gly Cys Tyr Pro Lys Leu Thr Met Tyr Ser Tyr
                85                  90                  95

Tyr Cys Gly Gly Asp Gly Pro Tyr Cys Asn Ser Lys Thr Glu Cys Gln
            100                 105                 110

Arg Phe Val Cys Asp Cys Asp Val Arg Ala Ala Asp Cys Phe Ala Arg
        115                 120                 125

Tyr Pro Tyr Asn Asn Lys Asn Tyr Asn Ile Asn Thr Ser Lys Arg Cys
    130                 135                 140

Lys
145
```

<210> 10
<211> 30
<212> PRT
<213> elm seeds

<220>
<223> Xaa at positions 1, 23, 24 and 25 can be any amino acid.

<400> 10
Xaa Asn Val Gly Val Gln Ala Thr Gly Thr Ser Ile Ser Val Gly Lys
1 5 10 15

Gly Cys Lys Arg Lys Cys Xaa Xaa Xaa Phe Cys Tyr Gly Pro
20 25 30

<210> 11
<211> 83
<212> PRT
<213> rice green shoots

<220>
<223> Xaa at position 81 can be any amino acid.

<400> 11
Met Arg Phe Phe Leu Lys Leu Ala Pro Arg Cys Ser Val Leu Leu Leu
1 5 10 15

Leu Leu Leu Val Thr Ala Ser Arg Gly Leu Asn Ile Gly Asp Leu Leu
20 25 30

Gly Ser Thr Pro Ala Lys Asp Gln Gly Cys Ser Arg Thr Cys Glu Ser
35 40 45

Gln Phe Cys Thr Ile Ala Pro Leu Leu Arg Tyr Gly Lys Tyr Cys Gly
50 55 60

Ile Leu Tyr Ser Gly Cys Pro Gly Glu Arg Pro Cys Asp Ala Leu Asp
65 70 75 80

Xaa Cys Cys

<210> 12
<211> 88
<212> PRT
<213> rice green shoots

<220>
<223> Xaa at positions 79 and 82 can be any amino acid.

<400> 12
Met Arg Phe Phe Leu Lys Leu Ala Pro Arg Cys Ser Val Leu Leu Leu
1 5 10 15

Leu Leu Leu Val Thr Ala Ser Arg Gly Leu Asn Ile Gly Asp Leu Leu
20 25 30

Gly Ser Thr Pro Ala Lys Asp Gln Gly Cys Ser Arg Thr Cys Glu Ser
35 40 45

Gln Phe Cys Thr Ile Ala Pro Leu Leu Arg Tyr Gly Lys Tyr Cys Gly
50 55 60

Ile Leu Tyr Ser Gly Cys Pro Gly Glu Arg Pro Cys Asp Gly Xaa Asp
65 70 75 80

Gly Xaa Cys Met Val His Asp His
85

<210> 13
<211> 138
<212> PRT
<213> rice green shoots

<400> 13
Met Pro Pro Arg Ser Pro Leu Leu Ala Leu Val Phe Leu Ala Ala Gly
1 5 10 15

Val Leu Ser Ser Ala Thr Ser Pro Pro Pro Pro Pro Cys Ser Arg Ser
20 25 30

Cys Ala Ala Leu Asn Cys Asp Ser Val Gly Ile Arg Tyr Gly Lys Tyr
35 40 45

Cys Gly Val Gly Trp Ser Gly Cys Asp Gly Glu Glu Pro Cys Asp Asp
50 55 60

Leu Asp Ala Cys Cys Arg Asp His Asp His Cys Val Asp Lys Lys Gly
65 70 75 80

Leu Met Ser Val Lys Cys His Glu Lys Phe Lys Asn Cys Met Arg Lys
85 90 95

Val Lys Lys Ala Gly Lys Ile Gly Phe Ser Arg Lys Cys Pro Tyr Glu
100 105 110

Met Ala Met Ala Thr Met Thr Ser Gly Met Asp Met Ala Ile Met Leu
115 120 125

Ser Gln Leu Gly Thr Gln Lys Leu Glu Leu
130 135

<210> 14
<211> 35
<212> PRT
<213> Ulmus glabra (seeds of elm)

<220>
<223> Xaa at positions 1 and 31 can be any amino acid;
Xaa at position 19 is Phe or Ser; at position 23
Glu or Pro; at position 24 Pro or Lys; at
position 25 Phe, Tyr or Leu; at position 34 Arg
or Leu; and at position 35 Tyr or Ser.

<400> 14
Xaa Asn Val Gly Val Gln Ala Thr Gly Thr Ser Ile Ser Val Gly Lys
1 5 10 15

Gly Cys Xaa Arg Lys Cys Xaa Xaa Xaa Phe Cys Tyr Gly Pro Xaa Phe
20 25 30

Leu Xaa Xaa
35